

Data Required for Site Modeling

(The quality of results will depend on the data quality and quantity. Therefore, whatever one can find will help)

Sources

- Dimensions – delineation of the source area
- History of disposal (rates, concentrations, etc. Dimensions: area, depth, etc. We need to determine the mass of coal ash)
- Chemical constituents in the ash their concentrations and leachate characteristics (LEAF).
- Infiltration rate through the site, if someone estimated it.

Site Data

- Topographic map of the site area
- Water-table elevation data (recorded over a period of time)
- Contaminant concentration data

Aquifer

- Geometry: Hydrogeologic description, hydrostratigraphic description (material types, formations, thicknesses, etc.)
- Hydraulic conductivity (all directions), transmissivity
- Storage coefficient, specific yield
- Effective porosity
- Van Genuchten's parameters (soil parameters)
- Bulk density
- Organic carbon fraction
- Dispersivities (longitudinal, lateral, etc.)
- Recharge rate in the area surrounding the site.

Hydrology

- Precipitation
- Evapo-Transpiration
- Surface-water bodies layout with respect to the site, cross-section of the adjacent streams, base flow

Chemical properties

- Decay constants.
- Partition coefficients
- Koc (organic carbon – water partition coefficient) for organic chemicals.

Site Data

- Topographic map of the site area
- Water-table elevation data (recorded over a period of time)
- Contaminant concentration data
- Pumping well locations and pumping records
- pH of groundwater
- Dissolved oxygen in groundwater